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Collective Intelligence-Based Early Warning Management for Agriculture

Authors : Jarbas Lopes Cardoso Jr., Frederic Andres, Alexandre Guitton, Asanee Kawtrakul, Silvio E. Barbin

Abstract : The important objective of the CyberBrain Mass Agriculture Alarm Acquisition and Analysis (CBMa4) project is to minimize the impacts of diseases and disasters on rice cultivation. For example, early detection of insects will reduce the volume of insecticides that is applied to the rice fields through the use of CBMa4 platform. In order to reach this goal, two major factors need to be considered: (1) the social network of smart farmers; and (2) the warning data alarm acquisition and analysis component. This paper outlines the process for collecting the warning and improving the decision-making result to the warning. It involves two sub-processes: the warning collection and the understanding enrichment. Human sensors combine basic suitable data processing techniques in order to extract warning related semantic according to collective intelligence. We identify each warning by a semantic content called 'warncons' with multimedia metaphors and metadata related to these metaphors. It is important to describe the metric to measuring the relation among warncons. With this knowledge, a collective intelligence-based decision-making approach determines the action(s) to be launched regarding one or a set of warncons.

Keywords : agricultural engineering, warning systems, social network services, context awareness
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